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CONTENTS

Return to Dualism: HUGH MILLER 645

Organic Psychology. I. The Scientific Nature of Psychology: HULSEY CASON 654

Book Reviews 665

ERWIN METZKE, *J. G. Hamanns Stellung in der Philosophie des 18. Jahrhunderts.*

BARROWS DUNHAM, *A Study in Kant's Aesthetics.*

JOHANNES HOFFMEISTER, *Die Problematik des Volkerbundes bei Kant und Hegel.*

JOHN M. MECKLIN, *The Story of American Dissent.*

HUGH P. MACMILLAN, *Two Ways of Thinking.*

PIERRE GUERIN, *Pensée constructive réalités spirituelles.*

HERVEY DEWITT GRISWOLD, *Insights into Modern Hinduism.*

Other New Books and Journals 670

Notes and News 671

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VOL. XXXI, No. 24 NOVEMBER 22, 1934

THE JOURNAL OF PHILOSOPHY

RETURN TO DUALISM

HAVE we in our detailed and even tortuous commentary on contemporary physical theories failed to see the large and simple revolution that has occurred in this science? Once again, after centuries, we conceive of a total universe, spatially closed; and contemporary astronomy, unlike the speculation of the Greeks, elaborates this conception in exact yet empirical formulae. Once again the word "universal" has a scientific, and not merely a logical meaning, certain propositions being universal in the sense that they describe an ontological whole. The epoch of thought inaugurated by Copernicus comes to an end, "passes into us another soul." The genuine seeker after universal truth will not complain because it is the physicist, and not the philosopher, who has discovered the absolute he has so long sought. Would there have been a Riemann or a Gauss without a Kant? Our business is surely a more general appreciation of this new conception of a physical absolute, and an adjustment to it of our other conceptions—of our larger non-physical conceptions on the one hand, on the other of our more limited physical concepts. This paper will discuss the relation of universal geometry to two large conceptions envisaging nature respectively as a pattern of species and as a hierarchy of forms. It will touch only incidentally upon its relation to less comprehensive physical concepts.

I

The conception of nature as a closed geometrical structure is not new. It was familiar and indeed basic to Greek thought. It was implicit in the Babel-towers and temples of the religions out of which our Western tradition arose; it grounded the hope of the astrologers who followed the course of dynastic destiny through the geometrical field of the heavens. Contemporary physics consummates an effort as old as our culture.

Retrospect upon the evolution of physical science shows physical analysis to have been consistently determined by this pursuit of a spatial or geometrical whole. Contemporary theory reaches a science of world-geometry only because past theory made this conception its objective. But thought also pursues wholes other than the spatial. It pursues, for example, the biological wholeness which

is health, and the temporal wholeness which is the objective of narrative and history. The path to a comprehension of nature under the form of a single geometrical structure has in consequence been anything but direct. Thought has been deflected by other conceptions, leading in other directions. One of these was the conception of a completed numerical order, easily confused with geometrical structure in an age which had not learned to distinguish numbers from the solids used in counting, and which exemplified geometrical ratios in measurements involving a recurrent and arbitrary unit. The voluminous and spatially patterned integers of the Pythagoreans present the most striking illustration known to us of this confusion. At the same time, by their study of the incommensurables, the Pythagoreans led the way to a clearer distinction of geometry from number.

But the identification of geometry and number was the least part of the Greek confusion. The space-filling integers were ordered by analogy with the species and genera of the living world, while these were arranged in a hierarchical pattern borrowed from the social order, and leading up to a supreme genus, the One. This triple confusion of geometry with number, of number with the specific pattern of life, of specific with caste relations—was systematized in the Hellenistic conception of the One, and so projected into medieval theology. It has continued to dominate speculation down to this day, when, its source forgotten, it springs up in the least expected places. It motivates, for example, that theory of types which would by fiat identify a logic abstracted from number-theory with the Aristotelian logic abstracted from plant and animal morphology. All systematic monism, and all pursuit after a single organon of thought, perpetuates the ancient confusion.

If we can clarify the confusion to-day, at least in part, we owe this not so much to philosophical acumen as to the progress of physical science, which has at last established the autonomy and integrity of geometrical analysis by a comprehensive theory of cosmic structure. We understand what belongs in a picture as the picture approaches completion. We must recognize too the pragmatic value of the past confusion, which encouraged the thinker to carry the one conception into fields initially occupied by the others, and in this way to universalize its scope. So the hybrid integers of the Pythagoreans led the way to algebra and analytic geometry; so the conception of a universal geometry, confused with a natural law controlling social destiny, led to the ideal of a universal polity; so the Greek atomism, a reduction of all the species of nature to a few geometrical solids, prepared for the chemistry and quantum theory of to-day; and so the hybrid notion of a *generation* of mathematical entities out of a

formula has stimulated theoretical construction. But our appreciation of the instrumental value of these hybrid notions must not blind us to their essential unintelligibility. They represent stages on the way to a clear articulation of universal geometry, of the art of symbolism, of the actual interdependencies of living species in a universal process, and of the dynamics of human society. They are dreams, not science.

But if we are to distinguish from each other these hitherto confused objectives of our speculation, what is to be their differentia? What, for example, differentiates the geometrical conception which we now see to be the motivation of physical analysis? Shall we say its use of measurement, its exactitude? Every science seeks to be exact, and will measure where it can. The use of statistics does not make economics physics. Shall we say that physics articulates spatial pattern? This is truer, but still indefinite, for every pattern is manifest in space. We have long ago forgotten the original goal of physical speculation, the objective which provided its motivating power. Physics arose as a pursuit of the eternal. For the Greek mind space was the container, as for the modern mind it has been the medium. But the container of what? The medium for what? The container of change, the medium for motion. Space has always meant our apprehension of nature in abstraction from its change; and while it has been popularly confused with the void, space has always supplied the scientist with effectual distance factors. The first great physicists were priests and statesmen, in search of an enduring social structure; but in their pursuit of the eternal and immutable, they appealed to a nature wider than society, to the great universe of heaven and earth; and there, and not in the world of life, the goal has been attained. Our universal geometry is the universe known in its eternal structure. Modern physics no longer abstracts so roughly from time as did the Greek; it symbolizes time in its formulae. But the time thus symbolized is not historical time; historical time is change of form, while the natural structure symbolized in physical formulae is changeless. Physical science is our perspective upon the eternal.

It may be objected that universal geometry is but part of physical theory. This is true. Physics also engages nature as a movement of discrete entities, and the theory of the quantum witnesses to the ineradicable character of natural discreteness. But atomism and whole-ism, discreteness and continuity, are complementary and not alternative conceptions; and in our analysis of nature it is always the concept of continuity which is primary and which goes ahead, the other concept accommodating itself to this progress. Our investigation, as it moves by a mysterious prescience towards struc-

tures larger than the configurations of our casual perception, must ever turn in its tracks to undertake an analysis of casual experience into units smaller than those of sense, but commensurate with theory. Atomism has never been more than a device accommodating perception to geometrical thought. Thus reconstruction moves towards the macroscopic and the microscopic at the same rate; and it is no accident, but an implication of physical method itself, that speculation should simultaneously advance the two theories of universal geometry and the quantum. The quantum theory permits the application of mathematical physics at a point. As ultimates of physical analysis, clearly discernible in themselves though not in their interrelation, the quantum and the geometrical cosmos are ontologically real and objective. To repudiate these metaphysical ultimates is to invalidate all intellectual analysis whatsoever. In them, physical knowledge reveals itself to be no merely empirical generalization, but literally universal and absolute in its grasp of ultimate form. For the first time in human history, realism is fact and not just faith.

The cosmic geometry is fixed, the quantum moves. To know in detail how a moving reality maintains its fixed structure would be to know all. But some understanding of this relation is provided by the body of physical knowledge, and physicists will henceforth apply themselves to its clearer exposition, by showing the ingredience of quanta and of cosmic structure in this or that historical situation. Our business as philosophers is to recognize that physics has touched ceiling and floor of the cosmic room, two absolutes immune to change. We must not deny this achievement on the ground of the abstract character of physics. Physics abstracts from the historic evolution of nature; but it is not necessary, in order to lay emphasis upon the dynamic nature of reality, to deny its eternity of structure.

Nor may we confuse these absolutes with the many instrumental concepts—atom, magnetic field, entropy, etc.—which link them to the forms of our casual perception. These other entities may be real or fictitious, in no case are they part of nature's eternal structure. Finally, we should renounce forever the disingenuous sophistry that pretends to reduce these physical absolutes to psychical, neutral, transcendental or other non-physical entities. Let us emphasize the truth and ultimacy of physical knowledge; and then, with an open and ingenuous mind, we can turn our attention to the aspect of nature from which physics abstracts—namely, to its specific or historic character!

II

A good many trails, independently initiated, have merged together to form the broad route which physics now travels; but not

all the trails of human thought merge in this one. Others proceed in other directions, and it is the business of the philosopher who is not a physicist to discern some community of direction among these. Our retrospect upon past thought presents to us, over and above the progress towards contemporary physics, movements leading towards the subsumption of nature under the conceptions of specific pattern and of hierarchical structure.

Neither of these conceptions, however, has succeeded in disentangling itself either from the other or from geometrical structure. Our study of the interrelationship of the living species, for example, is still largely a study of their spatial morphology. Plato, while confusing the three conceptions, held them in firm balance; but Aristotle's subordination of mathematics to a hierarchy of genera and species dominated subsequent thought until the Renaissance. The greatness of Descartes lay in his clear discernment of geometrical structure, or extension, as at once autonomous and abstract. Physics has profited highly by his distinction, but few philosophers have appreciated his insight. Philosophy set itself instead, more deliberately now, to the reduction of physical to biological or moral categories. Note some of the perversions under which the specific forms and social hierarchies thrown out of geometrical physics by Descartes have been restored by his successors! Here belong the anomalous modes of Spinoza; the pre-established harmony of Leibniz; Locke's inaccessible substances, specific natures these, lurking behind the geometrical transparency of matter; the qualitative sensationalism of Malebranche and Berkeley, and Hume's psychological mathematics; Kant's hierarchy of will, thought and perception, subjectifying all knowledge; idealistic logic, cleaving to the syllogism; the protean positivism now with us, subordinating systematic knowledge always to the more specific entities of our animal perception; and finally our pseudo-realisms, with their scholastic essences multiplied a million-fold now that no Occam stands by with his razor. Have we still to learn, after a century of lip-service to evolution, that specific form is mutable and historic, and that we reach the timeless formulae of physics by express abstraction from the flux? And shall we never know that the syntax of a science, call it logic or what you will, is never more but always less than the natural knowledge it is culled from?

How this long-sustained and perverse endeavor to re-establish in geometry the specific forms of nature has exhausted modern thought, perhaps to incapacitate it forever! Discouraging us by its felt perversity, sophisticating us by the necessity of disguising its failure, it has discredited us with the thinking world, which has sensed the bigotry of the effort without discerning its error or appre-

ciating its motive. But most disastrous has been its effect in blinding us to the specific forms themselves, in their own right and in their dynamic significance. Shall we ever know again that nature lives, that species, though mutable, are real? Yet what fact is more universal or better attested, than that nature comes in types or species, functionally and therefore intelligibly interdependent? It was necessary, doubtless, to turn aside from the specific historicity of nature in order to concentrate upon its eternal structure; but now that we have finished the entrée, we ought to be allowed dessert.

We do give some grudging biological acknowledgment to the specific forms of the plant and animal worlds; but the dependence of *physical* analysis upon initial qualitative description, as well as the ever more apparent continuity of animate and inanimate matter, are proof that specific pattern is universal, and limited only by nature itself. Matter and life are indeed abstractions from nature, not provinces within it. How strangely we have ignored the obvious causal relations in this dimension of life! Instead of investigating the functional interdependencies among specific forms, we have protracted a primitive taxonomy based upon spatial similarities. To make up for this real absence of functional analysis, the genera were formerly supposed to determine the existence and characteristic form of the species. Now that we recognize genera to be only names symbolizing phylogenetic (or historical and not present) relationship, we proceed to throw out the baby with the bath by supposing that species too to be unreal. On the contrary a species in a real unit, a naturual group, integrated by a specific reproduction-mechanism and conserved by definite symbiotic dependencies upon other natural species. If taxonomy sometimes despairs at defining a species, that is because it uses a superficial morphological analysis in place of a functional description.

We are troubled to-day, of course, by the practical realization of Descartes' injunction to follow the course of physical structure even into the interior of the living organism. Obsessed with the ubiquity of physical structure, what we have to appreciate is the ubiquity of living or specific pattern, which reached down into inorganic matter even as physical structure reaches up into the organic. Man was encouraged to carry geometrical analysis from a few terrestrial solids into a universal science by regular movements of the immutable heavens; and in the same way our sense of nature as universal drama must carry us from the nearer drama of terrestrial evolution to the specificity which rides the skies.

Is such a science fantastic? Once we set about it, we shall find that physics itself has prepared the way. For physics, in its pursuit of a world devoid of specific form, has everywhere of necessity

taken account of the local and quasi-specific characters from which it then abstracts. Knowledge of physical structure is reached by way of recurrent and typical organizations of matter and energy; and in its passage from particular situations to universal structure, physics moves by way of pseudo-species like the atom and the molecule, the square and the circle, which involve and illuminate a genuine specific pattern still unknown. While such specific quality is only local accident for physics, it is accident admittedly ubiquitous in nature and essential to its process. So physics provides a mass of incoherent description resolved on the one hand into physical theory, but pointing on the other to a knowledge of specific pattern. Physical theory makes clear to us what is not physical in nature. To know, for example, how the specificities we call life differ from those we call inanimate, we should know the bed-rock of physical texture common to both. In its presentation of the unchanging geometrical warp of nature, physics allows us to follow the moving tapestry of specific form which weaves through that warp, and to delineate which is the aim of an enlightened and rehabilitated biology.

Thus the atomic and molecular configurations of chemistry, although themselves hybrid entities arising from quantitative analysis and incomparable with the familiar and genuine species of nature, are instrumental to a study of the crystals, which in their retention of character through variation of size may constitute genuine natural species. The extent of crystalline form is seldom appreciated. Not only do most minerals gravitate toward it, but it is present as intermolecular stress in all liquids. If rivers and seas are crystalline, it is tempting to ascribe this character to the atmosphere, and even to the vast spaces where energy is most tenuously distributed. And a crystalline world is a specifically patterned world, in which gravitation itself may be our most summary recognition of a universal interdependence of species. Chemistry aids us further in its study of the colloids, familiar in natural slimes and in protoplasm, significantly exclusive of crystalline form, and bridging the gap between inorganic and animate nature.

In the organic realm itself, the concept of an interdependence of species bids fair to remove the present antinomies and to establish an intelligible methodology, by showing us that we mean by "organic" nothing else than that relative stability of specific form notable throughout nature. The method will be that of ecology, but of an ecology which will ultimately include also the species of the "inanimate" environment in its reconstruction of the larger organizations of life. There is no clash where ecology, physiology, cytology and bio-chemistry all study in the large or in the small the configurations of a host of species of which the "organism" manifests one.

In the human world, finally, a study of specific form removes the ancient myth, still the foundation of our psychology and sociology, of a fixed human species, encourages the description of distinctive cultural units and their interference, and provides a basis for the scientific reconstruction of history. It will further remove our philosophical antinomies, by leading to the delineation of effective fields larger than that of human society and effectively determining the course of cultural evolution. So we shall be led up to a metaphysic proper to our age, one which no longer denies form and reality to the mutable but which recognizes the dimension of time in the historical evolution of specific pattern, while pointing to eternal structure as the other of the two equally intelligible objectives of our science of nature. This is to return to a dualism not of substance, not of parallel aspects, but of factors or dimensions—of time and space, historicity and eternity, woof and warp, specific pattern and physical structure. So we fulfill the prophecy of the *Timaeus*, that profound parable which since the Dark Ages has shaped the course of Western thought, to realize itself to-day in literal truth.

III

What of the third great conception that has dominated our tradition, that of a natural hierarchy? We noticed that this conception, suggested by a primitive feudal society, was mistakenly extrapolated into an interpretation of the animal and vegetable world. As feudalism has ceased to be the definite form of our society, we have come to see that genera exert no causal influence on the species they include. Yet the hierarchial conception, to be so long effective, must have engaged some real and objective order. We can recognize in it, I believe, a foreshortened and superficial perspective upon the evolution of specific patterns. Telescope the evolution of species upon a timeless plane, and you have the hierarchy, the earlier and more generic forms seeming to inform the later. In truth, the determinants of a specific form lie in the many species which even now interact with it, and in no sense in its ancestral lineage.

The ultimate process of nature is a symbiosis, participated in by inorganic as well as organic species, and not a simple imposition of form. The animal form is largely determined by that of its vegetable or animal prey, and varies with the latter. The way in which human culture has been molded by the plants and animals man has had commerce with, and literally worshipped, is perhaps the most fascinating chapter of anthropology. Plants have just as strikingly responded to their animal hosts, producing edible fruits and clinging burrs.

But priests and statesmen were our first philosophers, and they

prosecuted science in what was, according to their lights, the social interest. As officers of a dominant cult, unconsciously exaggerating their regulative function, they ignored the alien characters upon which their cult was to be imposed. The plebs was for them matter, and they could not know to what an extent the plebian ethos was to dominate the social evolution. We know better, let us hope, the conspiracy of government with governed that is law.

In theory and in practice the hierarchical misconception has worked havoc, and should be made anathema. In practice it makes the course of social evolution a violent and bloody passage. In theory it issues in a sterile transcendentalism that is wholly self-defeating; for if we follow the hierarchy downwards, we land in an ineffable formlessness which must nevertheless be appealed to as the effectual principle of dispersion and analysis; while if we follow it upwards we reach a similar vacuity at the top. The notion of levels of complexity and organization, so popular to-day, perpetuates the old confusion of specific and physical analysis. The real complexity of any specific form can be shown only in the dynamic interrelations of many species, and is quite irrelevant to the physical complexity of the individual members. Does the complexity of a machine measure its function? The permanent value of the hierarchical conception lay in its insight into a unidirectional character of nature, and this is conserved in the conception of an evolving pattern of natural specificity.

Since Kant, even since Leibniz and Locke, Western thought has struggled to give expression to this historical and evolutionary dimension, only to be baffled by its inability to distinguish nature's historical character from an eternal physical structure. Epistemology is one form of this confusion—we abstract our intellectual systems from the specific historical context in which alone they are intelligible, and ask their relation to physical structure. There is no simple answer to this question, since the specific and physical dimensions of nature are incommensurable, and manifest their relation only in the infinite story of creation. Bergson has approached this conclusion, only to turn back finally to a monism which invalidates physical knowledge, even while it prohibits any analysis of the specific and non-physical pattern of nature. Instead of neither, we can have both sorts of knowledge, if we will recognize the essential duality of nature. Physics needs this validation, for its theorists are wavering in their realism; while biology and sociology are in crying need of a guidance which can be provided only by a theoretical acceptance of the larger agencies and forms of an historic evolution. In practice too we need the stimulation of this revelation of the necessity we are under of keeping step with a nature that is marching on.

In its failure to make metaphysical acknowledgment of the historical passage of nature, modern thought has only reflected a more general immaturity. In its predilection for the eternal and static our science is still Greek. Yet our culture is not Greek.

Its shibboleth is progress, its religion is creation; and this religious vision of nature as the drama of a universal life will yet be made articulate in scientific reconstruction. That science will be a discourse on the specificity of nature, in distinction from its immutable geometrical form.

HUGH MILLER.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES.

ORGANIC PSYCHOLOGY. I. THE SCIENTIFIC NATURE OF PSYCHOLOGY[1]

THE most insistent theoretical questions of present-day psychology seem to be those which have grown up naturally as a result of the associations between psychology and several more or less closely related sciences. There is some confusion on the definition of psychology, but practically all of the processes we study are similar to the concept, for example, of a "walk" when this word is used as a noun. The topics studied in psychology are always activities or functions of the living organism, and the only adjective which can distinguish the present psychology from other kinds is "organic." The term "organismic" has the misfortune of being associated with C. M. Child's partiality for the protoplasms of the lower animal forms and with the Gestalt psychologists' emphasis on the limited field of conscious perceptual processes at the expense of other more important activities of the psychological organism. The present writer's psychology then may, if desired, be referred to as "organic psychology," and we would not object to "psychology" alone if the concept of "organic" were always understood. This paper is concerned with those general scientific questions which are frequently raised in psychology.

DIFFERENT SCIENTIFIC LEVELS AND THE RELATION OF PSYCHOLOGY TO OTHER SCIENCES

Knowledge of natural phenomena is arbitrarily divided into scientific fields which can not be sharply separated from each other, and there is a somewhat distressing tendency for each science to

[1] Part II on "The Psychological Organism" has appeared in the *Psychological Review*, Vol. 41 (1934), pp. 356–367; and Part III on "The Methods and Subject-Matter of Psychology" has been published in the *Journal of General Psychology*, Vol. 11 (1934), pp. 187–193.

define its subject-matter so broadly that it includes some of the subject-matter of other sciences. Good scientists maintain an interest in several closely related fields, but this does not place an undue strain upon them because what they consider their own field almost always includes a large portion of the subject-matter of other sciences. In describing some of the scientific levels and the position of psychology among them, the following scientific levels will be found convenient for our present purposes: social sciences, psychology, physiology, anatomy, cytology, chemistry, and physics. These scientific levels will be taken up in the reverse order.

Physics and Chemistry.—Physics is the study of nature in so far as it can be reduced by calculation and experiment to a few simple laws, and it treats of the phenomena associated with matter. Chemistry is concerned with the composition of bodies and the changes of composition they undergo, and it deals with the constitution of matter considered as composed of ultimate integral particles such as electrons, atoms, and molecules. Several subjects are studied by both physics and chemistry, and no sharp line of demarcation can be drawn between the two sciences. The concept of matter has undergone a radical change in recent years, and more emphasis is now placed on other concepts such as energy. The physical scientists have reached the conclusion that the appearance of "objects" is for the most part an illusion.

Mechanical analogies are sometimes used in psychology, but mechanics is a part of physics and is removed a considerable distance from the psychological level.

Cytology.—Cytology, anatomy, and physiology are included in biology, and biology is often too broadly defined as the science of life and living things. Cytology treats of the structural details and functions of cells, and closely related to cytology is histology, which studies the structure of tissues and their arrangement in organs. Some attention may be paid to development and function in the histological study of an organ.

In psychology it is customary to consider the primary reproductive cells, and the minute structure and functions of sense organs, nerves, muscles, and glands. The scientific study of an organ and its function often leads to an investigation of the minute structure of the tissues of which the organ is composed.

Anatomy.—Anatomy is the science of the structure of the organs and bodies of living things, and gross anatomy is concerned with the form and composition of the larger organs of the body. There are large differences between different people in both gross and fine anatomy, and the differences between the two sexes and between people of different ages are also important in psychology. The

anatomy of different animals such as protozoa, worms, insects, fishes, birds, monkeys, and men goes far toward explaining the differences in behavior, and in the same animal such as, for example, the rat, a knowledge of the structure of the different parts throws some light on the functioning of the different parts. In animal psychology, child psychology, and abnormal psychology, much attention is paid to the structures that are involved in various activities, and proper scientific ideals require that in the study of every psychological function some account be taken, if possible, of the form and nature of the structures that are functioning.

Physiology.—Physiology studies some of the functions of organic beings, and psychology studies other functions. Physiology may be distinguished from anatomy, which treats of structures, and from pathology, which treats of the modifications of functions and changes in structure which are caused by disease. The relation between anatomy, on the one hand, and physiology and psychology, on the other, is the close relation between structure and function. Structures and functions are closely related to each other, but they are still different from each other. Structures influence functions, but many physiological and psychological functions also influence the form and composition of the structures.

Differences Between Psychology and Physiology.—Physiology is more closely related to chemistry than is psychology, and physiology is principally concerned with the vital or maintenance functions of the organism. The connection between physiology and medicine is fairly close. Physiological activities are frequently involved in the adaptations and maladaptations to the so-called biological environment, and psychological activities are frequently involved in adjustments and maladjustments to the cultural environment.

The methods used in physiology and psychology are practically the same, and the most important differences are in subject-matter. The most satisfactory way perhaps to distinguish between the two sciences is to list the topics which are stressed in the two fields. Physiology places greater emphasis than psychology upon nerve-muscle preparations, digestion and secretion, the cardiovascular system, the respiratory system, reproduction, and heat production and regulation. Psychology places greater emphasis than physiology upon externally observable behavior, learning and retention, verbal activities, habits, motor skills, attention, perception, thinking, imagination, affectivities, native drives, intelligence, personality, esthetic activities, and dreams. There is some overlapping, which is very much to the mutual advantage of the two sciences, in sensory, nervous, muscular, and glandular functions; reflex action; tissue needs and native drives; and work, fatigue, rest, and sleep.

The scientific nature of physiology is increased by its close relation to anatomy and chemistry, and the scientific nature of psychology is increased by its close relation to anatomy and physiology; but psychology and physiology still differ from anatomy and chemistry in several respects. Some further differences between psychology and the biological sciences may be brought out in connection with the differences between men and subhuman animals.

Differences between Men and Subhuman Animals.—Men and subhuman animals differ from each other in the chemical systems of their bodies, and in cytology, anatomy, physiology, and psychology; but the lower animals also differ from each other in a most unusual fashion. Heredity and many other biological factors are relatively more important in subhuman animals. The differences between men and subhuman animals are much greater at the higher scientific levels, and they are also much greater in the more complicated psychological processes.

There is a special interest in the comparison between men and the higher apes because although men and apes are equipped with nervous systems that are similar in several respects the psychological differences between the two are large. It is difficult to compare the intelligence of men and apes because the qualitative and quantitative differences are so great, but judging by the quantitative data that are available on human children it would seem that the difference between the intelligence of the average three-year-old child and that of the mature ape is greater than the difference between the intelligence of the mature ape and no intelligence at all. Man's superiority in speaking and thinking can not be passed over lightly. Pre-school children form verbal associations with tens of thousands of objects and events; and judging by the number of verbal and other concepts that are commonly discovered the difference between the average adult man and the smartest ape that has so far been investigated is many times as great as the difference between the genius ape and a zero quantity.

People are thinking about something or other practically all of the time, and although they may not always be thinking about important subjects, they are still thinking. They write down their thoughts for future use, think about the future as well as the past, and on some occasions display a degree of foresight and purpose that is surprising. In the ability to solve problems and to reason, the difference between man and ape is great indeed.

We have mentioned the ape because he is the highest of the lower animals, but the differences between the personalities of man, on the one hand, and the rat or the amblystoma, on the other, are considerable.

One of the greatest differences between men and subhuman animals is in verbal and other complicated forms of learning. Man can learn verbal material that is out of the question with animals. He can learn many different kinds of elaborate motor performances, such as typewriting and playing musical instruments, and he acquires a large number of interests, desires, aversions, attitudes, beliefs, convictions, and prejudices not found among the brutes.

All kinds of conscious activities seem relatively more important in human nature. People have a larger number and greater variety of feelings, emotions, moods, and sentiments; and man almost seems to be set apart from the animals by his esthetic organization, unconscious dispositions, humor, and dreams of both the waking and sleeping varieties.

Another interesting difference between men and animals is in the matter of psychological abnormalities. Lower animals do not have human delusions, obsessions, and depressions; and the animals seldom show any of the usual symptoms of the functional neuroses and psychoses. The principal differences between men and animals seem to be those which are related to learning and retention, language organization, and creative imagination.

The Social Sciences.—Having described the general nature of psychology, it now only remains to consider the highest of the scientific levels, that of the social sciences. The most interesting feature of the social sciences is that they are principally concerned with human nature rather than with the nature of subhuman animals. Such subjects as philosophy, economics, sociology, religion, education, political science, history, language and literature, and art and esthetics are placed above psychology, but these subjects have some close connections with the biological and physical sciences. Psychology is regarded as more scientific than the social sciences, but there are no more important subjects than those studied by the social sciences. The relation between psychology and physiology appears closer than that between any one of the social sciences and any one of the biological sciences, but, while this is a scientific advantage for psychology, the students of psychology and the social sciences are generally aware that being scientific and being important are not synonymous.

Relations between Different Scientific Levels

The Human Tendencies of the Scientists.—It might be supposed that men of science would hold accurate views in regard to their own and other sciences, but it is almost the rule for each scientist to overestimate the importance of his field, and the great majority of lower-level scientists take a particularly pessimistic attitude toward the

higher levels. Being scientific does not mean that one will not be subject to ordinary human weaknesses. The scientist's thinking about his own and other fields is sometimes motivated by feelings, desires, and wish-fulfilling processes.

There is a tendency for each scientist to define the subject-matter of his science so that it includes too much material. The physical scientists claim they study matter and energy, but they do not study all manifestations of matter and energy; and as physical scientists they know practically nothing about biology, psychology, and the social sciences. Biologists claim they study life and living things, but they do not study all or necessarily the most important activities of living organisms; and as biologists they know next to nothing about psychology and the social sciences. Psychologists are said to study some of the activities of living organisms, but they do not study all organic processes of men and animals; and as psychologists they know almost nothing about the social sciences. Psychology also may not be regarded as the only study of mental activities, because some mental activities belong in esthetics, logic, and ethics.

Each Science Is Limited in Its Application to the Higher Levels.—Each scientific level has limitations which should be recognized, because the application to and prediction of processes and phenomena in the higher levels are quite precarious. No one would expect a social worker to carry on his work in strict accordance with chemical principles, and no one would ask a biologist as such for his opinion on the principles of learning. Psychology is also quite limited in its application to the social sciences, and a psychologist as such knows nothing, for example, about the history of marriage or the economic condition of the world. The social scientist is better qualified than the psychologist to judge the value of psychology in his social science, and a psychologist is probably also better qualified than a physiologist to judge the value of physiology in psychology.

The "More Than" and "Nothing But" Hypotheses.—Activities are studied at each scientific level that are more than the activities studied in any one, or all, of the lower level sciences, but the activities at each level involve in one way or another all of the activities in the lower levels. The "more than" hypothesis, as applied to adjacent scientific levels, is as follows. Chemistry involves but is more than physics, cytology involves but is more than chemistry, anatomy involves but is more than cytology, physiology involves but is more than anatomy, psychology involves but is more than physiology, and the social sciences involve but are more than psychology. The books on physics do not say anything about anatomy and the books on anatomy do not say anything about psychology largely because there is nothing for them to say.

According to this "more than" hypothesis, there is no social science which can be reduced to psychology, psychology can not be reduced to physiology, physiology can not be reduced to anatomy, anatomy can not be reduced to cytology, etc. Psychology can not be reduced to any one or all of the biological and physical sciences, and biology can not be reduced to any one or all of the physical sciences.

The "nothing but" hypothesis holds that the processes studied at one scientific level are "nothing but" those studied at some one or several of the lower levels. The social sciences are nothing but the psychological, biological, and physical sciences; psychology is nothing but biology, chemistry, and physics; biology is nothing but chemistry and physics; chemistry is nothing but physics; and physics is nothing but a set of mathematical equations. According to this reasoning, all kinds of natural phenomena would be reduced to a set of mathematical equations. But the reasoning is a forlorn hope, and the general conclusion is unjustified.

The suggestion is sometimes made that studies at some one of the higher scientific levels should be discouraged until more conclusive data are available at the lower levels, but this suggestion has practical disadvantages. There is no more reason for refusing to study an organ because its chemistry is not completely understood than there is for refusing to study chemistry because chemical affinity is not understood, or for refusing to study physics because energy, electricity, etc., are not completely understood. The biologists would have to wait too long if they waited for the last word to be said in physical science, for the last word may never be said. The psychologists would have to wait too long if they waited until biology was finished, because it may never be finished. And in the meantime the proposition should not only be admitted, but it should be urged and defended by all persons everywhere that each scientific level has a justification and respectability of its own. It is particularly important to accept this proposition as far as the higher scientific levels are concerned because there are some reasons for believing that scientific studies are more profitably carried out at the higher scientific levels than at any one of the lower levels.

It Is Undesirable to Stress the Importance of Any One Level at the Expense of Other Levels.—In various discussions of the relative importance of different scientific levels, the biologists have been particularly energetic in defending their special group of sciences. They have claimed in no uncertain terms that the biological sciences are both justified and respectable. Hear, for example, the strong words of Professor Jennings, who, besides speaking for biology, is supporting the experimental method and defending one of the current

forms of the doctrine of emergent evolution. "The doctrine of emergent evolution makes the biologist loyal to experimentation and observation in his own field of work, whatever is found in other fields. Courage and defiance sprout in his soul in place of timorous subservience to the inorganic. No longer can the biologist be bullied into suppressing observed results because they are not discovered nor expected from work on the non-living parts of nature. No longer will he feel a sense of criminality in speaking of relations that are obvious in the living, for the reason that they are not seen in the non-living. Biology becomes a science in its own right—not through rejection of the experimental method but through undeviating allegiance to it. The doctrine of emergent evolution is the Declaration of Independence for biological science" (*Science*, 1927, *65*, pp. 21–22).

The doctrine of emergent evolution is similar in several respects to the present treatment of the scientific levels and the relations between them, but our description of these levels would not make an anatomist or a physiologist any more loyal to his scientific level than it would make a chemist, a psychologist, or a social scientist loyal to his. Our treatment would produce no more courage and defiance in the soul of a zoologist than it would in the soul of a physician or philosopher. The biologist need not feel a sense of criminality in speaking of phenomena that are not included in the physical sciences, but a psychologist also need not feel a sense of criminality in speaking of phenomena that are not included in physiology, anatomy, and cytology. It seems that Professor Jennings should not have stopped at the level of the biological sciences, because there is no more reason for calling special attention to any one of the biological sciences than to any one of the physical, psychological, and social sciences. There is, in other words, nothing sacrosanct about the subject-matter of the biological sciences. Experimental studies should be encouraged in the biological sciences, but such studies should also be and are also being encouraged and carried out at the psychological and social levels.

A Systematic Psychological Position

Psychology Is Not One of the Biological Sciences.—We do not regard psychology as one of the biological sciences because the point of view and interests of psychology are quite different from biology, that is, different from botany, bacteriology, cytology, histology, anatomy, physiology, zoology, and ecology. Several biological sciences are intimately associated with medicine, and botany is closely related to agriculture.

It is common for those who teach biology in the universities to

emphasize the concepts of evolution, heredity, growth, purpose, and adaptation to the environment, but these concepts have only a limited value for psychology. Some of these concepts would be of greater value for psychology were it not for the large differences between human nature, on the one hand, and the nature of plants and subhuman animals, on the other. Psychologists have not been greatly concerned over evolution since the discussions of G. Stanley Hall's theory of recapitulation died down a generation ago. The psychologists' attitudes toward heredity and instincts have changed in recent years. The concepts of "growth" and "development," which are unfortunately still current, suggest that the successive life stages of an individual are in large measure the result of the hereditary factors which were present at conception, and those who use these terms freely and loosely underestimate the importance of the strictly psychological and social factors.

The suggestion that psychology is the study of the adaptation of animals to their environments suffers from serious limitations and is the cause of much confusion in psychology. The biological concept of adaptation suggests a wild and somewhat standardized creature alone in the woods and struggling for his bare life against the force of nature. In the case of man, however, it seems clear that both the creature and the "environment" are very different from this primitive life-and-death picture. Man has changed his own nature, and what is called human nature is not the same as the nature of prehistoric man. Man has produced and manufactured a large portion of his own environment, and the outstanding factor in his adaptation to the environment has been his spoken and written language. The practical sciences of engineering and medicine have played a more important rôle than the pure science of biology in making possible the present civilization, such as it is.

People are not trying to "adapt" themselves to the environment all of the time, and many psychological activities are present while this much-talked-of attempt at adaptation is not present at all. Psychological activities may be adaptive, non-adaptive, or maladaptive. Certain features of chronic alcoholism, insomnia, hysteria, and some of the psychoses, although for the most part maladaptive, are still very properly included in the psychological field. The assumption that each structure and function of the body exists for an intelligent purpose is reading more into the situations than is justified by the facts themselves. The concepts of purpose and an upward striving toward perfection are least plausible at the psychological and social levels, because here the subject-matter under consideration is "out of the woods" and the phenomena in question can be more readily observed and the causal relationships more clearly understood.

Emergent Evolution.—The above treatment of several scientific levels and the relations between them does not harmonize in all respects with the most common form of the doctrine of emergent evolution. The principal difference perhaps is that our treatment is based on the characteristics of the subject-matter of the several sciences as the sciences now exist, and our discussion is not intended as a cosmic theory. We have not postulated the existence of a consciousness, mind, group mind, entelechy, *élan vital,* or an upward striving toward perfection. Psychology studies many activities that are ugly and displeasing as well as others that are attractive and pleasing. We study maladjustments and maladaptations as well as adjustments and adaptations. There is a psychology of idiots as well as one of normal people.

The relative positions of several sciences have shifted radically in the past, and scientific levels can not be regarded as in any way fixed at the present time. Physics became a separate science after chemistry, astronomy, and geology; but at present physics belongs to a lower level than any one of the three other sciences. Psychology was once regarded as one of the mental sciences, but this classification is no longer satisfactory. The methods and subject-matter of the different sciences are not determined solely by theoretical speculations. The sciences for the most part go where they are taken by the scientists.

As further data are obtained about psychology and the social sciences, more and more of the subject-matter of the social sciences is included in psychology. Collecting additional facts on psychology and physiology causes psychology to become more physiological; and increasing the known facts about biology and the physical sciences produces a settling toward the levels of the physical sciences. With every great discovery some of the subject-matter of one science drops into the lap of the science just below. Although there is much to be said in favor of the "more than" hypothesis and against the "nothing but" hypothesis, the extent to which the knowledge of one science is of value at the higher levels differs greatly with different pairs of adjacent sciences. When two sciences are closely related to each other in both subject-matter and method, there may be considerable traffic across the border in both directions, but an especially heavy traffic from the lower- to the higher-level science.

The Alleged Relation between the Body and the Mind.—When the word "body" is used in connection with this question, there is often considerable confusion in regard to whether or not the bodily features in question are physical, chemical, cytological, anatomical, physiological, psychological, or a combination of some or all of these. There are large age, sex, and racial differences between dif-

ferent bodies, and the structure of all bodies is constantly changing. Many students of philosophy and psychology do not know what is meant by the word "mind" when it is used in any connection; and there is some difficulty in understanding how there can be any constant and definite relation between a changing object and an indefinite concept, or any relation between something and nothing.

The "body and mind" expression suggests that there are only two kinds of worlds, and the assertion is often made that one is forced to take a position on the relation between these two worlds. But there are more than two kinds of worlds, and one does not have to take a position on the relation between the always changing body and the hypothetical mind. Each of the scientific levels which we have described includes phenomena and activities which are different from those included in each of the other levels; and the interrelations between the scientific levels are important. Psychology is no longer concerned with the special problem of the relation between the body and the mind; and in the place of this problem we now have the much more significant questions of the interrelations between reflex action; sensations; perceptions; nervous and muscular functions; verbal activities; the affectivities; and conscious, nonconscious, and unconscious activities.

Mechanism and Determinism.—Mechanics is a branch of physics, and the claim that psychological processes are machinelike in nature involves the assumption that the levels of physics and psychology are quite close together, when actually they are quite far apart. The characteristics of animals and machines are different, and there is no psychological process which closely resembles any ordinary machine. It is not difficult to be in error on this question, but mechanistic psychology would seem to be similar to such subjects as anatomical economics and chemical religion. Psychological activities are more physiological and organic than chemical, physical and mechanical.

Psychological determinism, on the other hand, merely assumes that psychological activities are determined by cause and effect relationships and that all psychological processes are themselves causal factors in the chains and patterns of causal events. The doctrine of psychological determinism holds that all psychological activities depend upon conditions, and that all psychological activities are in turn the conditions of other processes. In the science of psychology we think it is of some value to assume that this deterministic position is correct until evidence is brought forward which shows that it is not.

Systematic attitudes on psychological questions influence one's interests and evaluation of all kinds of experimental work, but the

most important results and conclusions in our science are based on experimental and observational data. The facts of every science are constantly changing because research and investigation are continuous; and the general point of view of each science is very largely determined by the methods which it employs in the collection of additional data.

HULSEY CASON.

UNIVERSITY OF WISCONSIN.

BOOK REVIEWS

J. G. Hamanns Stellung in der Philosophie des 18. Jahrhunderts. ERWIN METZKE. Halle: Max Niemeyer. 1934. viii + 145 pp. RM 10.

The works of J. G. Hamann (1730–1788) are seldom read, and their peculiarities of style and conception at first make an enigmatical impression beyond which it requires care and art to penetrate. The University of Königsberg is observing the two hundredth anniversary of this extraordinary native-son by the preparation of a new critical edition of his works under the very competent direction of Josef Nadler.[1] The present special study by Erwin Metzke, also published in the *Schriften der Königsberger Gelehrten Gesellschaft,* aims to expound the main themes of Hamann's thought systematically, and to disclose his true position in the development of modern philosophy more correctly than has been done heretofore.

It is a needed and in many respects a timely work. Hamann is generally grouped with F. H. Jacobi as one of the eighteenth-century *Glaubensphilosophen* who criticized rationalism and rehabilitated the principle of belief or faith. The present study, however, lays a proper stress on the uniqueness of Hamann's position. Whereas Jacobi offers a formal, one might indeed say a rationalistic defense of irrationalism, the essence of Hamann's position is to insist on the central significance of the individual's entire living relation to reality, which reason may in some degree serve, but which it can neither control nor adequately formulate. What Hamann has to say about faith, not as a formal principle, but as belief inseparable from personal condition and experience, is especially noteworthy, and so also is what he says about dynamic speech as the great organon in which living reality is grasped and communicated.

Other phases of Hamann's thought, although always idiosyncratic, seem less significantly original. After a conversion, which followed upon a crisis in his twenty-eighth year, he understood his personal relation to reality to be essentially Lutheran, a witness to

[1] Cf. Nadler, J., *Die Hamannausgabe,* Halle, 1930

the dependence of human creatures upon the creative power of God. Discussing and illustrating with numerous citations Hamann's views on such topics as God, man, history, nature, self-knowledge, freedom, revelation, reason, faith, and language (only with respect to his views on society is one left curiously uninformed), Metzke concludes that Hamann used his Lutheranism to combat rationalism and the metaphysics of substance, and that in so doing he promoted tendencies which led in German idealism to a new doctrine of spirit, although at the same time he avoided the rationalistic, pantheistic, and humanistic aspects of idealism. In the course of discussion Hamann's relations to Hume and to Kant are effectively indicated.

But Hamann has apparently had to wait until to-day, when—after Nietzsche and after Kierkegaard—a new "Auseinandersetzung" is taking place in German thought between Lutheran Christianity and humanistic idealism, to find true successors. One feels that the author of the present monograph is not only sympathetic, but is virtually enlisting Hamann on his side in a contemporary discussion. This imparts a lively and timely interest to his pages, but it may be questioned whether it is altogether to their advantage as historical criticism. No doubt Hamann's "standpoint" is more fully reproduced here, where he is represented as a neo-Lutheran *Existentialphilosoph*, than in earlier accounts grouping him with Jacobi as a *Glaubensphilosoph*. But perhaps he would be understood even better, and still more instructively, if instead of adopting his standpoint one attempted to carry out in a more modern spirit the implications of his position and studied him in all concreteness as an individual living in specific real relations.

H. L. F.

A Study in Kant's Aesthetics. The Universal Validity of Aesthetic Judgments. BARROWS DUNHAM. Lancaster, Pa.: Privately printed. xiii + 142 pp.

Dr. Dunham has given us in brief compass a surprisingly adequate review of Kant's main esthetic doctrines together with a fair appraisal of them against the background of ideas current during Kant's lifetime and in the light of the author's own esthetic insight. The main emphasis falls on the possibility of formulating and validating an objective principle of taste. While admitting that "on the 'empirical' level [Kant's] judgments are of dubious merit" the author believes that, "in his search for the basic principles and the ultimate explanation of taste, no critic and no philosopher has equalled his profundity" (p. 10, cf. p. 14). But though "Kant rightly conceived the nature of his goal" (p. 121) he failed to reach it because he refused, for reasons which the author indicates, to ad-

mit the possibility of a really universal and necessary principle of taste (p. 124). Dr. Dunham attempts, in the last chapter, to make good Kant's failure. He formulates the ultimate principle of taste, which is universally and necessarily valid because it is presupposed by all esthetic experience (Kant's own method of validation), as follows: "An object is beautiful to the extent and the degree in which, by its form and sensuous qualities, it excites all the activities of the human self to the most refined and harmonious interplay of which they are capable" (p. 131). The main body of the book, meanwhile, is devoted to a review of the development of Kant's ideas from 1764 to 1790 and to a critical examination of Kant's description of the esthetic judgment and its subjective and objective bases together with Kant's treatment of feeling, charm, emotion, and the interplay of the imagination and the understanding.

Dr. Dunham has a real gift for terse statement and happy phrasing; the book is genuinely readable. The general treatment of Kant is sound, though I question certain interpretations, e.g., of the first *Critique* (pp. 55 ff.), of Kant's Ideal of beauty (p. 66) and of the notion of "purposiveness without the idea of purpose" (pp. 29 ff.). Competent use has been made of Kant's non-esthetic writings (except on pp. 80 ff.) and of English and foreign critical works. I heartily commend the author's repeated attempts to relate Kant's doctrines to Kant's own esthetic tastes and to the art and criticism of the period, and am sorry that more was not made of Kant's relation to late eighteenth-century romanticism, classicism, and the tendencies exemplified in the rococco. The author's own account of taste raises numerous unsolved problems; the objectivity of beauty, for example, is at times seemingly asserted, elsewhere denied. The book's greatest weakness is its rather inexcusable failure to come to grips with the problem of natural *vs.* man-made beauty. These defects will, I hope, be remedied in a more systematic study of esthetics for which Dr. Dunham obviously possesses high qualifications.

T. M. G.

Die Problematik des Völkerbundes bei Kant und Hegel. JOHANNES HOFFMEISTER. (Recht und Staat in Geschichte und Gegenwart, 111.) Tübingen: J. C. B. Mohr. 1934. 48 pp. 1.50 M.

This pamphlet compares and contrasts the ideas of Kant and Hegel on the subject of war and peace, defending Hegel's philosophy of international relations as not only more realistic than Kant's, but as a more positive contribution to the practical question of the transition from *Volksgeist* to *Weltgeist*.

H. W. S.

The Story of American Dissent. JOHN M. MECKLIN. New York: Harcourt, Brace and Company. 1934. 381 pp. $3.50.

Many observers of American life have noted the paradoxical fact that our "great dissenting-revivalistic churches, the Baptists, the Methodists, and the Presyterians . . . to-day two-thirds of all Protestants, were a little more than a century and a half ago, despised dissenting minorities in the powerful colonies of Massachusetts and Virginia." This observation Professor Mecklin has made the theme of a lively historico-sociological study, devoting all but a few pages of his narrative to the period prior to 1800. Dissent he defines broadly as opposition to all forms of religious establishment, of which the Quakers and the Baptists furnish the best examples. The contribution of the Methodists to the cause of religious liberty in America he finds "almost negligible." Once the goal of dissent, namely, legalized tolerance, was attained, "dissent itself lost its reason for being and disappeared as an active force, leaving the intolerant and self-centered tradition of evangelical piety in complete possession of the field." The author retells with much vigor, sometimes himself succumbing to the Puritan's fondness for question-begging epithets, the familiar stories of Roger Williams and Ann Hutchinson, adding a valuable chapter on "The Dissenter and the Yankee Tax Collector." Unlike New England, Virginia kept within itself articulate dissenting groups, and so achieved that separation of church and state which Professor Mecklin characterizes as "the greatest single contribution of the dissenting tradition to American life." To-day he holds that religious dissent is dead, and its churches "cultural anachronisms," too often using legal tolerance for the purposes of spiritual intolerance.

H. A. L.

Two Ways of Thinking. HUGH P. MACMILLAN. Cambridge: The University Press. New York: The Macmillan Company. 1934. 46 pp. 75c.

The Rede Lecture, delivered at Cambridge last May by Lord Macmillan, is an interesting comparison of the logical and the empirical types of mind. He finds the two types in the contrast of Scot and Englishman, and of Scotch Civil Law and English Common Law, as well as elsewhere. Some of his generalizations are debatable. For instance, he says the logical type of mind, being doctrinaire, tends towards democracy; whereas the empirical, facing facts, is naturally aristocratic.

H. T. C.

Pensée constructive réalités spirituelles. Essai de psychologie formelle à propos de l'ascétisme religieux. PIERRE GUERIN. Paris: Félix Alcan. 1934. 451 pp.

This is an impressive and thoroughgoing attempt to apply phenomenological analysis to religion. The author selects piety in its empirical forms as the "object" whose transcendental reality or idea he seeks to portray. The result is an admirable critique of the common Catholic practices of piety: the celebration of the mass, confession, prayers, liturgy, and regular devotions. This is followed by an analysis of the relations between the soul or subject and the objective activities of piety. Though the analysis is somewhat cumbersome, especially in its attempt to avoid any theological implications whatsoever, this book is undoubtedly a major contribution to the psychology of religion and to an understanding of the functions of piety in the moral life.

H. W. S.

Insights into Modern Hinduism. HERVEY DEWITT GRISWOLD. (Studies in Religion and Culture. Schermerhorn Lectures II.) New York: Henry Holt and Company. 1934. Pp. xii + 288. $2.00.

The author introduces his subject with three chapters of a general and historical nature, one dealing with Hinduism in its environment and in its relation to world religion; another setting forth six characteristics which have marked Hinduism from the beginning; a third giving an account of Ramanuja and his position. These make substantial contribution to the general theme of the book. Four chapters describe movements of the last century, showing how Islam and Christianity, especially the latter, influenced the life and thought of leading religious teachers. Eleven chapters, consisting of biographical sketches (as also do the four just mentioned), show how unrest and movement find expression in Hinduism. Some of these religious leaders are Hindus, some are Christians. The latter retain substantial elements of the older faith. One man from the West, who is included in the biographical studies, introduced Hindu method into his Christian practice. The qualifying phrases attached to the various names in the sketches bring out the exact points of significance. Two chapters, devoted to untouchable groups, Bhangis and Chuhras, show how in these strata also Hinduism exercises its absorbing influence and brings strange elements within its grasp. The author has the rare ability to sift out from the enormous mass of detail which characterizes Hinduism just those elements which are of significance for his theme. All through the style is direct and concise. Just enough

of the past is brought into the picture to make clear his points. Movements and persons with which he has been at home for many years are the means whereby he opens up aspects of Hinduism and shows how contemporary religious influences are at work within it. The bibliography contains some important and little known references. Dr. Griswold sustains the reputation which he has long had in India of being a great scholar who has studied with insight and sympathy the religious life of that country.

GEORGE W. BRIGGS.

DREW UNIVERSITY.

OTHER NEW BOOKS AND JOURNALS

PHILOSOPHY OF SCIENCE. Volume I, No. 4. Abstract Logic or the Science of Modality: *H. B. Smith.* An Examination of the Quantum Theories III: *W. M. Malisoff.* Physico-Mathematical Aspects of the Gestalt-Problem: *N. Rashevsky.* Logical Analysis of the Psychophysical Problem. A Contribution of the New Positivism: *Herbert Feigl.* The Parallel Development of Method in Physics and Psychology: *Charles Hartshorne.* A Preamble to an Organismic Theory of Knowledge: *O. O. Norris.*

GIORNALE CRITICO DELLA FILOSOFIA ITALIANA. Anno XV, Fasc. IV–V. La filosofia di Ernst Cassirer: *H. Levy.* Filippo Buonaccorsi detto Callimaco e le correnti filosofiche del Rinascimento: *B. Kiezkowski.* Studi hegeliani: *G. Cogni.* Il pensiero filosofico di Maurizio Blondel nel suo sviluppo storico: *G. Durante.*

ERKENNTNIS. Band 4, Heft 4. Das Weltbild und die Begriffsapparatur: *Kasimir Ajdukiewicz.* Die signifischen Grundlagen der Mathematik. I.: *Gerrit Mannoury.* Bericht über den 8. Internationalen Kongress für Philosophie in Prag.

Seeberg, Erich: Meister Eckhart. (Philosophie und Geschichte, 50.) Tübingen: J. C. B. Mohr. 1934. 64 pp. (This essay is an introduction to the proposed edition of Meister Eckhart's works. It outlines the problems that face the historians of Eckhart: the relative value of the Latin and German works, the development of Eckhart's thought, its Neoplatonic background and its ethical implications.)

Smith, T. V.: Philosophers Speak for Themselves. Guides and Readings for Greek, Roman, and Early Christian Philosophy. Chicago: University of Chicago Press. 1934. xxiv + 800 pp. $4.50. (A book of readings from the Greek and Roman philosophers from Thales to Augustine, together with biographical and bibliographical notes and a brief survey [Appendices III & IV] of Scholastic philosophy and theology.)

NOTES AND NEWS

We regret to announce the death on November 18 in Paris of Professor James Mark Baldwin.

Professor Baldwin was born January 12, 1861, at Columbia, S. C. After attending Princeton, the Universities of Leipzig, Berlin, and Tübingen, he became fellow and instructor at Princeton University in 1885. From 1887 to 1889 he was Professor of Philosophy at Lake Forest University; from 1889–1893 he was Professor of Logic at the University of Toronto; he returned to Princeton in 1893 as Stuart Professor of Psychology. From 1903 to 1909 he was Professor of Philosophy and Psychology at Johns Hopkins University. After that he lived abroad for the most part.

In addition to writing his well-known works on genetic philosophy and psychology, he compiled the *Dictionary of Philosophy and Psychology* (1901–1906) and was editor of the *Psychological Review* from its foundation in 1894 to 1909.

We regret to announce the death on November 9 of Dr. Benjamin Rand at Canning, Nova Scotia. Dr. Rand was librarian emeritus of the Emerson philosophical library at Harvard University.

He was born July 17, 1856, at Canning, Nova Scotia, and educated at Acadia College, Nova Scotia, and at Harvard, where he received the A.B., A.M. and Ph.D. degrees. He also studied at the University of Heidelberg. Intermittently between the years 1885 and 1902, he was a member of the faculty of Harvard University and was made librarian of philosophy in Emerson Hall in 1906, retiring a few years ago. He was the author of several works of philosophical history and bibliography.

We have received the first number of the *Neue Folge des Logos*, which indicates that this former "International Journal for the Philosophy of Culture" has been "coördinated" to the exigencies of the present in Germany. The main title of the journal is no longer *Logos* but *Zeitschrift für Deutsche Kulturphilosophie*, and the new editors declare that they are decidedly done with "the pale apparition of an international philosophy of culture." However, they welcome contributions and exchanges from those of other countries whose ideas of culture have genuine roots in their own "national distinctiveness." The editors also invite the coöperation of German men of letters, announcing it as their policy to have the journal less "professional." They aim to serve the trend toward a com-

munity of cultural studies, rather than to foster isolated and narrow departmentalism.

The place of Richard Kroner as editor-in-chief is now taken by Professors Hermann Glockner of Giessen and Karl Larenz of Kiel. Like his predecessor, Glockner is a former student of Heinrich Rickert's. The fact that he shares editorial responsibilities with Professor Larenz seems to imply that, under the direction of the latter, special emphasis will be given to legal, political, and social philosophy. The names of E. Cassirer, E. Husserl, F. Meinecke, and R. Otto have disappeared from the list of collaborating editors, which now reads as follows: Bruno Bauch, Julius Binder, Hans Freyer, Theodor Haering, Nicolai Hartmann, Heinz Heimsoeth, Erwin Guido Kolbenheyer, Ernst Krieck, Karl Alexander von Müller, Hans Naumann, Heinrich Rickert, Erich Rothacker, Walther Schönfeld, Richard Siebeck, Eduard Spranger, Hermann Stehr, Karl Vossler, Heinrich Wölfflin, Max Wundt.

The leading articles of the first number are as follows: Deutsche Philosophie: *Herman Glockner.* Volksgeist und Recht. Zur Revision der Rechtsanschauung der historischen Schule: *Karl Larenz.* Rechtsphilosophie, Jurisprudenz und Rechtswissenschaft: *Walther Schönfeld.* Die Abstimmungsurnen des deutschen Reichstags. Ein Beitrag zum gegenwärtigen Problem der künstlerischen Aufgabe: *Hubert Schrade.*

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